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TAGS: TECH, PFOR, MNUC, PARM, US, UK, IT, JA, FR, GW,CA
SUBJECT: RESULTS OF JUNE 8-9 SUMMIT NUCLEAR NON-
PROLIFERATION EXPERTS MEETING: DRAFT REPORT TO THE
SEVEN GOVERNMENTS

REF: PARIS 17135

1. THE FRENCH MFA DISTRIBUTED ON FRIDAY, JUNE 10, THE
FINAL DRAFT OF PAPERS DEVELOPED AT THE SUBJECT MEETING:
PARA 2, THE INTRODUCTORY REPORT; PARA 3, THE TECHNICAL
AND ECONOMIC SCOPE (OF INFCEP); AND PARA 4, THE
ORGANIZATION (OF INFCEP). THE INTRODUCTORY PORTION WAS
DISTRIBUTED ONLY IN FRENCH; THE ENGLISH IS THIS
EMBASSY'S INFORMAL TRANSLATION. THE OTHER TWO SECTIONS
WERE DISTRIBUTED IN THE FRENCH AND ENGLISH LANGUAGES.
COPIES OF THE PAPERS DISTRIBUTED HAVE BEEN SENT TO THE
DEPARTMENT/OES.

2. INTRODUCTORY REPORT TO GOVERNMENTS.

THE CHIEFS OF STATE AND GOVERNMENT WHO MET IN
LONDON ON MAY 7 AND 8, 1977, AGREED UNANIMOUSLY THAT IT
WAS NECESSARY TO INTENSIFY THE USE OF NUCLEAR ENERGY
TO MEET THE INCREASING NEEDS FOR ENERGY WORLDWIDE AND
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TO ASSIST IN DIVERSIFYING SOURCES OF ENERGY. THEY ALSO
AGREED THAT THIS NEED HAD TO BE MET THROUGH REDUCING
THE RISKS OF NUCLEAR PROLIFERATION AND THAT SUCH A
RESULT WOULD REQUIRE SIGNIFICANT INTERNATIONAL COOPERA-
TION. IN ADDITION, THEY EMPHASIZED THAT FOR THIS
POLICY TO BE EFFECTIVE, IT HAD TO BE ACCEPTABLE TO
INDUSTRIALIZED COUNTRIES AS WELL AS DEVELOPING COUN-

TRIES.

TO SATISFY INCREASING ENERGY NEEDS, IT IS NECESSARY FOR MANY INDUSTRIALIZED AS WELL AS DEVELOPING COUNTRIES TO USE NUCLEAR ENERGY.

THE RISK OF PROLIFERATION OF NUCLEAR WEAPONS BROUGHT ABOUT THROUGH THE DEVELOPMENT OF NUCLEAR ENERGY, CAN ONLY BE REDUCED BY CONCERTED INTERNATIONAL POLICY, WHICH WOULD UTILIZE VARIOUS MEANS TO HARMONIZE REQUIREMENTS FOR THE FIGHT AGAINST PROLIFERATION WITH AN INCREASED USE OF NUCLEAR ENERGY.

IT IS FOR THESE PURPOSES THAT THE INTERNATIONAL ATOMIC ENERGY AGENCY WAS ESTABLISHED, THAT THE NON-PROLIFERATION TREATY WAS SIGNED BY A LARGE NUMBER OF COUNTRIES, AND THAT THE LONDON GUIDELINES WERE ADOPTED BY THE PRINCIPAL EXPORTING COUNTRIES. AN IMPORTANT SYSTEM OF INTERNATIONAL SAFEGUARDS HAS BEEN DEVELOPED AND WIDELY ACCEPTED.

FOLLOWING THESE EFFORTS, IT IS NECESSARY TO PROMOTE A WIDER INTERNATIONAL CONSENSUS IN THIS FIELD.

IN ADDITION, IT HAS BEEN QUESTIONED WHETHER IT IS POSSIBLE TO CONTINUE WITH THE DEVELOPMENT OF CERTAIN NUCLEAR TECHNOLOGIES WHILE COMPLYING WITH NON-PROLIFERATION REQUIREMENTS.

IN THIS CONTEXT, THE SUGGESTION HAS BEEN MADE TO STUDY ALL ASPECTS OF THE NUCLEAR FUEL CYCLE.

SUCH A STUDY SHOULD MAKE IT POSSIBLE:

- TO SUPPLY INFORMATION RELATIVE TO THE DEVELOPMENT OF EXISTING OR FUTURE NUCLEAR ENERGY SYSTEMS WHICH WOULD REDUCE THE MAXIMUM POTENTIAL RISKS OF PROLIFERATION LIMITED OFFICIAL USE

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TION WHILE ENSURING FOR EACH NATION SAFE AND ACCEPTABLE SOURCES OF ENERGY FROM AN ECONOMIC AS WELL AS AN ENVIRONMENTAL POINT-OF-VIEW.

- TO INCREASE INTERNATIONAL COOPERATION IN AREAS OF MUTUAL INTEREST LINKED TO THE UTILIZATION OF NUCLEAR ENERGY FOR PEACEFUL PURPOSES AND TO OFFER THE POSSIBILITY OF ORGANIZING EXCHANGES OF VIEWS AND TO BETTER BRING TOGETHER POLICIES ADOPTED ON THIS MATTER.

AMONG COUNTRIES WHICH COULD PARTICIPATE IN SUCH A PROGRAM, DIFFERENT TECHNIQUES OR NUCLEAR FUEL CYCLES HAVE BEEN DEVELOPED AND DIFFERENT STRATEGIES OF THE FUEL CYCLE HAVE BEEN ADOPTED, ACCORDING TO THEIR

INDUSTRIAL OPTIONS, THEIR SITUATION AND THEIR NATIONAL ENERGY RESOURCES. (AT THE SAME TIME, THEY WILL TAKE INTO ACCOUNT QUESTIONS STUDIED IN THE PROGRAM WHEN THEY MAKE THEIR NATIONAL DECISIONS.) DURING THE IMPLEMENTATION OF SUCH A PROGRAM, IT SHOULD

BE THEIR COMMON INTENTION TO COMPLY WITH THEIR CHOICES

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AND THEIR OWN DECISIONS IN THIS FIELD (AND TO AVOID
ENDANGERING THEIR RESPECTIVE FUEL CYCLE STRATEGIES WHEN
THEY PROVIDE FOR THE UTILIZATION OF FUEL LEGITIMATELY
ACQUIRED PROVIDED THAT STEPS WHICH HAVE BEEN AGREED
UPON, INCLUDING SAFEGUARDS, BE APPLIED.)

THE FACT IS THAT TO PROCEED WITH THIS STUDY
DOES NOT MEAN THAT GOVERNMENTS HAVE TO ACCEPT ITS
RESULTS.

(ON THE ASSUMPTION THAT SUCH A PROGRAM WOULD BE
UNDERTAKEN,) THE PURPOSE OF THE PRESENT DOCUMENT IS TO
SUGGEST WHAT ITS MANDATE WOULD BE. SUGGESTIONS MADE
BY OTHER PARTICIPATING COUNTRIES WILL ALSO HAVE TO BE
TAKEN INTO ACCOUNT.

3.

I. TECHNICAL AND ECONOMIC SCOPE (1)

1) FUEL AND HEAVY WATER AVAILABILITY

A) ESTIMATED NEEDS FOR NUCLEAR ENERGY, AND
CORRELATED NEEDS FOR URANIUM, ACCORDING TO DIFFERENT
FUEL CYCLE STRATEGIES.

B) URANIUM AVAILABILITY

- ASSESSMENT OF RESOURCES AND PRODUCTION
CAPACITIES;

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- POLICIES AND INCENTIVES FOR ENCOURAGING EXPLORATION AND PRODUCTION INCLUDING JOINT VENTURES;
- MARKETING POLICIES AND/OR GUARANTEES OF SALES FOR COMPANIES INVESTING IN EXPLORATION AND PRODUCTION;

(1) THE SPLITTING AMONG CHAPTERS HEREAFTER PRESENTED IS INDICATIVE AND MAY BE CHANGED FOR THE SAKE OF BETTER EFFICIENCY.

- MARKETING POLICIES AND/OR GUARANTEES OF SUPPLY FOR UTILITIES;
- TECHNICAL DEVELOPMENT OF EXPLORATION AND MINING METHODS.

C) HEAVY WATER AVAILABILITY

D) THORIUM AVAILABILITY

2) ENRICHMENT AVAILABILITY

A) ENRICHMENT NEEDS AND AVAILABILITY ACCORDING TO VARIOUS FUEL CYCLE STRATEGIES:

- JOINT PLANNING OF FUTURE CAPACITIES;
- OPPORTUNITIES FOR CROSS-INVESTMENT;
- FREEDOM OF CHOICE FOR CUSTOMERS IN AN OPEN MARKET;

B) COMPARISON OF THE PROLIFERATION RISKS OF THE VARIOUS ENRICHMENT TECHNIQUES.

3) ASSURANCES FOR LONG TERM SUPPLY IN THE INTEREST OF NONPROLIFERATION

- INCENTIVES FOR LONG TERM COMMERCIAL CONTRACTS BETWEEN PRODUCERS AND CONSUMERS
- GUARANTEES OF ASSURED SUPPLY AND RELATIONSHIP TO FUTURE NATIONAL EXPORT AND NONPROLIFERATION POLICIES;
- MULTINATIONAL OR INTERNATIONAL MECHANISMS GUARANTEEING SUPPLIES IN CASE OF UNEXPECTED CUTTING OFF OF SUPPLIES.

4) REPROCESSING, SEPARATED PLUTONIUM, RECYCLE
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A) REPROCESSING.

- STUDY OF THE ECONOMIC ENVIRONMENTAL AND ENERGY ASPECTS OF REPROCESSING ON A FULL INDUSTRIAL SCALE;
- IMPROVEMENT OF SAFEGUARDS TECHNIQUES;
- REGIONAL FUEL CYCLE CENTERS;
- ALTERNATIVE REPROCESSING METHODS INCLUDING COPROCESSING SPIKING OR DELIVERY OF PLUTONIUM

IN THE FORM OF MIXED OXIDE OR EVEN FUEL
ELEMENTS, POSSIBLY PREIRRADIATED;

- WASTE MANAGEMENT.

B) SEPARATED PLUTONIUM

- CONDITIONS AND POSSIBLE RESTRICTIONS FOR
STORAGE, TRANSPORT AND USE OF HIGHLY CONCEN-
TRATED PLUTONIUM;
- INTERNATIONAL CONTROL OF SEPARATED PLUTONIUM

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INCLUDING STORAGE UNDER THE AUSPICES OF IAEA
AND RELEASE CRITERIA PROBLEMS.

C) RECYCLE IN THERMAL REACTORS

- STUDY OF THE ECONOMIC ENVIRONMENTAL AND
ENERGY ASPECTS OF THE CONCEPT ON AN INDUSTRIAL
SCALE;
- SAFEGUARDS PROBLEMS SPECIFIC TO RECYCLING;
- POSSIBLE URANIUM ONLY RECYCLE.

5) FAST BREEDERS

- STUDY OF THE ECONOMIC ENVIRONMENTAL AND ENERGY
ASPECTS OF THE CONCEPT ON AN INDUSTRIAL SCALE.
- SAFEGUARDS.
- REPROCESSING MODES (SAME SUBTITLES AS FOR
CHAPTER 4 A) ABOVE).

6) SPENT FUEL STORAGE AND DISPOSAL FOR PRESENT
THERMAL REACTORS

A) STORAGE STRATEGIES AND COSTS

- FOR LIGHT WATER REACTORS
- FOR HEAVY WATER REACTORS
- FOR GAS-COOLED REACTORS
- B) SHORT-TERM/INTERMEDIATE STORAGE
- WAYS OF INCREASING SPENT FUEL STORAGE.

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- SITING AND TRANSPORTATION PROBLEMS.
- MORE EFFICIENT UTILIZATION OF EXISTING SPENT FUEL CAPACITY.
- ENVIRONMENT SAFEGUARDS AND SAFETY ASPECTS INCLUDING FUEL INTEGRITY PROBLEMS AND ASSOCIATED RISKS.
- COSTS.
- LEGAL CONSTRAINTS.

C) SPENT FUEL REPOSITORIES (PERMANENT OR RETRIEVABLE)

- SITING PROBLEMS INCLUDING INTERNATIONAL REPOSITORIES.
- POSSIBILITIES OR RISKS OF FURTHER RECOVERY.
- ENVIRONMENT AND SAFETY ASPECTS INCLUDING FUEL INTEGRITY PROBLEMS AND ASSOCIATED RISKS AND PROTECTIONS AGAINST POSSIBLE DISSEMINATION OF FISSION PRODUCTS.
- COSTS.
- LEGAL CONSTRAINTS.

7) ONCE-THROUGH FUEL UTILIZATION FOR PRESENT THERMAL REACTORS.

A) METHODS TO INCREASE ONCE-THROUGH FUEL UTILIZATION

- OPTIMIZED FUEL AND LOADING DESIGNS,
- TANDEMS CYCLE,
- SPECTRAL SHIFT.

B) ENERGY BALANCE AND ECONOMIC SAFEGUARDING AND ENVIRONMENTAL ASPECTS OF ONCE-THROUGH UTILIZATION

- FOR LIGHT WATER REACTORS,
- FOR HEAVY WATER REACTORS,
- GAS-COOLED REACTORS.

8) OTHER REACTORS AND FUEL CYCLE CONCEPTS

A) PRODUCTION UTILIZATION AND SAFEGUARDS OF HIGHLY ENRICHED URANIUM FOR POWER REACTORS.

B) RESEARCH REACTORS: USE OF HIGHLY ENRICHED URANIUM AND POSSIBLE ALTERNATIVES.

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C) THORIUM - U233 CYCLE.

D) LIGHT WATER AND THORIUM BREEDER CONCEPTS.

E) HIGH TEMPERATURE REACTORS.

F) OTHER ADVANCED REACTOR CONCEPTS.

WITH, WHEN RELEVANT, IN EACH CASE:

- IDENTIFICATION OF THE FUEL CYCLE STAGES AT WHICH NUCLEAR WEAPONS USABLE MATERIAL MAY BE SEPARATED, AND THE POSSIBLE MEANS OF MINIMIZING PROLIFERATION RISKS,
- ECONOMIC ENVIRONMENT AND ENERGY ASPECTS,
- COMMERCIALIZATION LEAD-TIMES,
- SAFETY PROBLEMS.

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4. II. ORGANIZATION.

IF SUCH A PROGRAM WAS TO BE DECIDED, THE PROGRAM WOULD BE OPEN TO ALL COUNTRIES INTERESTED IN ITS WORK; IT IS SUGGESTED THAT ONE INTERNATIONAL WORKING GROUP BE CREATED FOR EACH OF THE AFOREMENTIONED CHAPTERS, COMPOSED OF REPRESENTATIVES OF COUNTRIES DESIRING TO TAKE PART. ONE OF THESE COUNTRIES SHOULD BE DESIGNATED TO PROVIDE A CHAIRMAN, ASSISTED BY REPRESENTATIVES OF ONE OR MORE COUNTRIES.

IT WOULD BE UP TO EACH GROUP TO DECIDE, AFTER CONSULTATION WITH THE CHAIRMEN OF THE OTHER GROUPS,

WHETHER OR NOT SUB-GROUPS WHICH WOULD REPORT TO THE GROUP, SHOULD BE CREATED.

THERE WOULD NOT BE COMMON FUNDING OF THE STUDIES, EACH PARTICIPATING COUNTRY, INCLUDING THOSE PROVIDING CHAIRMEN, BEING RESPONSIBLE FOR THE EXPENSES OF ITS OWN PARTICIPATION.

EACH GROUP OR SUB-GROUP WOULD DISTRIBUTE ITS WORK AMONGST ITS MEMBERS. COOPERATIVE STUDIES BETWEEN NATIONAL ORGANIZATIONS OR INDUSTRIES OF PARTICIPATING COUNTRIES WOULD BE ORGANIZED TO THE EXTENT POSSIBLE. ANY CONTRIBUTION BY A PARTICIPATING COUNTRY LIMITED OFFICIAL USE

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WOULD BE WELCOME.

IN ORDER TO ENABLE THE VARIOUS GROUPS TO GATHER THE MOST COMPLETE AND REALISTIC INFORMATION IN THEIR RESPECTIVE FIELD, ALL PARTICIPANTS WOULD DO THEIR BEST TO FACILITATE THE EXCHANGE OF THE DATA NECESSARY FOR THE COMPLETION OF THE EVALUATION PROGRAM.

THE VARIOUS GROUPS SHOULD REPORT TO A CONFERENCE OF THE PARTICIPATING COUNTRIES WHICH WOULD MEET AT LEAST ONCE A YEAR. AS MANY STUDIES AS POSSIBLE SHOULD BE COMPLETED IN TWO YEARS OR LESS. THESE REPORTS AND THESE STUDIES WOULD EXPRESS, AS FAR AS POSSIBLE, A UNANIMOUS POSITION BUT EACH PARTICIPANT WOULD BE ENTITLED TO INCLUDE A DISSENTING OPINION IF IT SO WISHED. A TECHNICAL COORDINATING COMMITTEE COMPOSED OF THE CHAIRMEN OF THE WORKING GROUPS AND REPRESENTATIVES OF COUNTRIES WHICH ASSIST THEM, AS PROVIDED IN THE FIRST PARAGRAPH, MIGHT BE CONVENED FROM TIME TO TIME TO COORDINATE THE WORK OF THE VARIOUS GROUPS.

IF THE IAEA SO AGREES, THE WORK OF EVALUATION COULD MAKE USE OF THE CAPABILITIES OF THIS AGENCY. THE IAEA COULD BE REPRESENTED IN ALL GROUPS AND COMMITTEES PARTICIPATING IN THE PROGRAM. THE AGENCY COULD BE ASKED, IN PARTICULAR, TO PROVIDE SECRETARIAT SERVICES. OTHER INTERNATIONAL ORGANIZATIONS COULD CONTRIBUTE AS APPROPRIATE.
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